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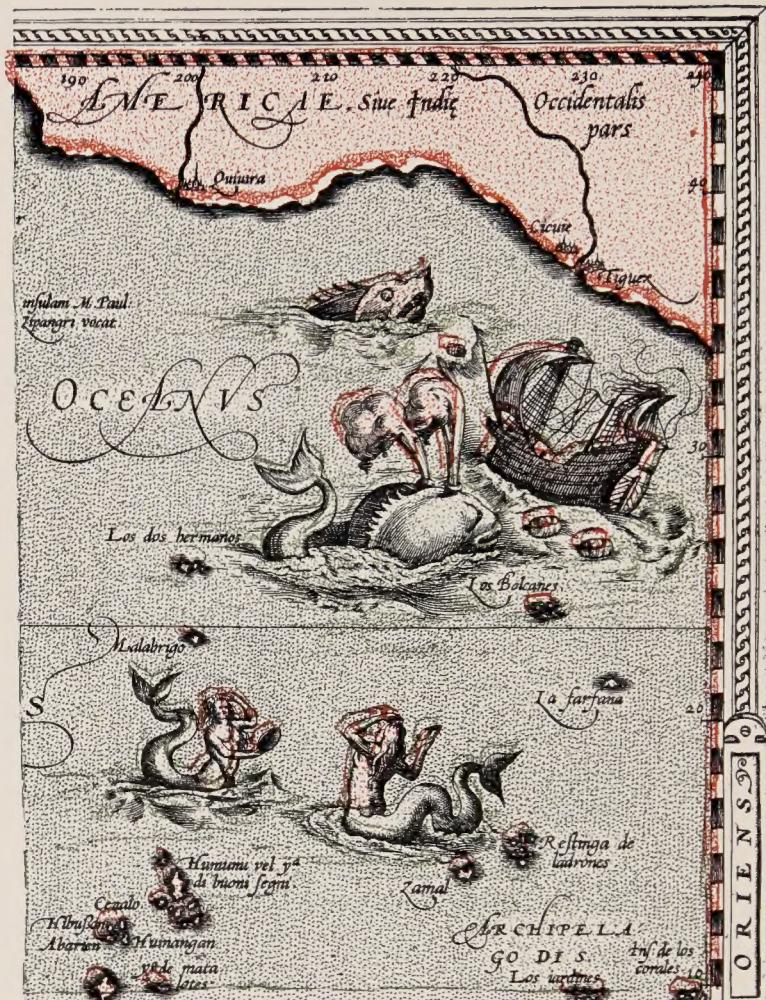
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FROM AN ADVERTISEMENT

ON A MOLL MAP OF 1711.



“*A MONG all ye
Cheats that
ye World are
dayly abus'd with, none
have lately been more
Scandalous than that of Maps, some-
times New ones are put out by Igno-
rant Pretenders, Sometimes mean
& imperfect forreign Maps are
Copi'd and publish'd by them as
theirown, and haveing no Judgment
or Knowledge of what is good or
bad, correct or incorrect, They
basely impose on the Publick with
pompous Titles, & pretend they are
Countenancd & assisted by those
who either never Saw or despise
their wretched Performances.”*



Upper corner of a map of the East Indies. From the THEATRUM. Printed by Plantin for Ortelius, at Antwerp in 1592, and colored by hand. The New World is still thought of as "America, or West India." The portion shown is presumably just north of California.

79578

OLD MAPS AND THEIR MAKERS

CONSIDERED FROM THE HISTORICAL
& DECORATIVE STANDPOINTS
A SURVEY OF A HUGE
SUBJECT IN
A SMALL
SPACE



By
LOUIS A. HOLMAN



SECOND EDITION
REVISED

79578

BOSTON
CHARLES E. GOOD SPEED & CO.
1926

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IT is the intention in this pamphlet to deal only with geographical maps, especially the early ones, showing the actual surface of the earth. Maps of the heavens, of the moon, charts of the sea as such, road maps, geological maps, war maps, statistical maps,—all such are outside the present purpose.

Even so, when the time arrived for the putting together of this monograph my notebooks had gathered to themselves an amazing quantity of facts. The task of arranging, eliminating and condensing was not easy; it was not only trying to produce "*multum in parvo*," but *too much in too little*.

Besides studying hundreds of maps at first hand, I have necessarily consulted numerous authorities who have recorded their conclusions in books, pamphlets and articles. I am indebted to them one and all, but their name is legion and I shall not attempt even to make a list. It would, however, seem ungracious not to mention three who have been of peculiar help to me in my adventure in the world of cartography: Justin Winsor, whose *NARRATIVE AND CRITICAL HISTORY OF AMERICA* is a mine of inexhaustible riches, Sir Herbert George Fordham, whose *MAPS, THEIR HISTORY, CHARACTERISTICS AND USES*, and *STUDIES IN CARTO-BIBLIOGRAPHY* are among the newest and best books on maps, and Dr. Charles P. Daly, who, in 1879, delivered a most enlightening address, *THE EARLY HISTORY OF CARTOGRAPHY*, before the American Geographical Society.

It gives me pleasure also to mention with gratitude: P—W—, for first drawing my attention to the wondrous beauty that lies hidden in maps, V—W—N—, for vital encouragement and practical aid, and T—L—, kindly critic, droll counsellor and genial guide in this my brave attempt to compass the impossible. Boston, Mass., Oct. 26, 1925.

I am greatly indebted to Dr. Edward L. Stevenson, of New York, author-lecturer on cartographical subjects, for a number of corrections which appear in this, the second edition.
Feb. 3, 1926. L. A. H.



FOREWORD



If one decides to build a house and seeks an architect, he will first draft a sketch of the building, which will give one an idea of what the house will look like, when finished. One can actually visualize the house. If the appearance of the house is not satisfactory the plans can be modified to suit. In the sketch, the architect will usually add some greenery to fit the house to its surroundings; will indicate in ornamental lettering that the drawing was made specifically for you, and that his firm is proud enough of its job to record the fact that they made the plans. In addition, he will supply some unornamental blue prints of the workaday details for the use of the stonemasons, bricklayers, carpenters and plumbers who are actually going to construct the house.

So in the development of cartography or mapology, it was the custom from the earliest times to draw maps which were ornamental as well as useful. In the absence of lighthouses and buoys, the appearance of the shore, its contours and the houses upon it were significant. In the manuscript and printed maps of the fifteenth and sixteenth centuries the cardinal, and later the other points of the compass, were frequently represented by heads, often of cupids with full cheeks, blowing from near the margin of the charts, and indicating the direction of the winds from these quarters. The points of the compass first appeared as a four leaved rose, which became later eight, sixteen and thirty-two leaved, as knowledge of the compass increased. A country was represented not merely as land of such and such a size and shape, but

forests and mountains were actually depicted and the size and importance of the cities were indicated by symbolic houses, small and few for villages, large and many for the cities.

The cartographer's information came largely from mariners, and was particularly intended for mariners' use. So, as the mate of a whaler records by picturesque sketches in his log book the ships which pass and the whales which are caught, the cartographer, up to 1700, was prone to make his seas more vivid by representations of ships and the denizens of the deep. In the early maps the fish tend to be relatively enormous and often are fabulous sea monsters rather than prosaic piscine specimens. In later maps ornamental cartouches show the costumed natives and the products of the country.

This is a matter-of-fact age and the maps of to-day register with much more exactness the shape, size and relations of the various countries. We still continue to use colors, not for beauty, but purely to differentiate countries or their divisions. The art and romance of the old map are missing.

Is it remarkable that the boy and girl approach map study to-day in the cold attitude of the mason or bricklayer dealing with the workaday blueprints? Art and romance have been replaced by the drudgery of mathematics. The appeal to the eyes and the imagination have given sway to the appeal solely to brute memory and reason. Cathay is now China. The fact that Spanish galleons sailed a regular track to the New World, loaded with supplies including golden doubloons and silver pieces of eight, and returned with a treasure of gold and silver bars, could not obtrude itself on the commonplace, lithographed map of to-day. Terra Firma and the Spanish Main have disappeared with sunken Port Royal, never to

appear again. The Tortugas, the pirates' rendezvous, are merely uninteresting islands, no longer cayos ; worth remembering only in that some day they may be revived commercially in the Florida land boom.

History is so intertwined with the geography of the world which grew out of Columbus' discovery that it would seem as if the only way to teach it intelligently would be by cartography, as Winsor has so well done in his **NARRATIVE AND CRITICAL HISTORY OF AMERICA**. The die, however, seems to be cast in the direction of the humdrum modern map which literally takes the joy out of life. Though our children must bow to the requirements of present day education for tame, commonplace exactness, we adults, at least are not so handicapped. With Ptolemy, Ortelius, Hondius, Speed, Mercator, and Blaeu we can have beauty and romance. We can sail with the galleons along the track recorded by Moll ; we can suspect that his specifications may have served to furnish precious information to the buccaneers who would lie in wait for the treasure ships, and we can shiver in anticipation of the outcome of the battle. We can dream of St. Brendan's Isle and the fabled Atlantis, of the gold of the Saragossa sea and the umbilicus of the world off the coast of Norway. There is something left to live for !

T. L.

" I never see a map but I'm away
On all the errands that I long to do,
Up all the rivers that are painted blue,
And all the ranges that are painted gray,
And into those pale spaces where they say :
' Unknown.' Oh, what they never knew
I would be knowing."

—JEAN KENYON MACKENZIE.





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OLD MAPS AND THEIR MAKERS

I HISTORICAL SURVEY



A MAP to most of us means a sheet of paper,—one of several thousand, printed and somehow colored, in a more or less prosaic way, by mechanical means. But when map-making began, maps were not casual things; they were laboriously drawn on cloth and papyrus, cut on wood and stone, engraved on silver and bronze, painted in frescoes, woven in tapestries and set in mosaic pavements. Maps came out of the dim beginning of things, as did the letters of the alphabet. One of the earliest that has come to us out of that dim past is in the British Museum. It is a plan of the Persian city of Shushan where, about 500 b.c., Nehemiah served as cupbearer to the king; where Esther won the heart of Ahasuerus. This plan was a century or so old in their day. Neither map, nor plan, nor chart is mentioned in the Bible, but in all probability Moses had something of the sort when he and his countrymen started for the Promised Land, and surely Joshua's task in dividing that land could hardly have been accomplished without one.

The earliest maps on record were made by the Egyptians; wooden tablets they were, on which the land and sea of a flat world were carefully indicated. One is in the Turin Museum, a map giving minute detail of a gold mining district in Nubia. It—probably the oldest map known—is about one thousand years older than the first Greek map. The Assyrians made maps, too; some—half picture, half map—were among the treasures dug up by Layard seventy-five years ago.

The first scientific treatment of geography and map-making developed among the Greeks. According to Strabo (60 B.C.-24 A.D.) they honored Anaximander (6th century B.C.) not only as the first man who tried to fix the bounds of the earth but as the inventor of cartography. He is believed by Aristotle (384-322 B.C.) to have thought of the earth's form as that of a long pillar. Parmenides, a friend of Socrates, (about 450 B.C.) is supposed by Strabo and Plato (429-347 B.C.) to have been the first to advance the theory of the spherical form of the earth. A century later Dicearchus, who had the courage of his convictions, drew a new map, making the world not a circular disc, as had his forefathers, but an oval plane; the distance East to West half again as great as that from North to South. Hecataeus, of Miletus, (about 500 B.C.) also made his world map an oval plane. Plato and Aristotle taught that the earth was a sphere, and Eratosthenes, of Cyrene, (275-196 B.C.) keeper of the Alexandrian Library, accepting the spherical theory of the earth's form, invented a method by which he found its dimensions. He, too, greatly improved on the old maps in the matter of accuracy.

Ptolemy, the Greek astronomer and geographer, who lived in the 2nd century after Christ, advanced the science of geography not only through his own contributions but also by giving to the world the conclusions of Marinus, the scholar of Tyre, to whom Ptolemy himself owed much. The work of Marinus we know only in this way. Ptolemy *may* have had constructed a set of maps to accompany his geography and these maps *may* have been those of Marinus, but redrawn. No one knows. Possibly Ptolemy contented himself with fixing, with some degree of accuracy, points on the earth's surface

SEVENTIEN



The World. From Ptolemy's *Geographia*, Munster's edition of 1540.

necessary for cartographers who should come after him. He himself, however, made errors that led many astray. To him the earth was an immovable sphere in the center of the universe. Although the period from the maps of Anaximander to those of Ptolemy's time was, roughly, seven centuries, almost double this time was destined to go by before the maps he made possible were given to the world.

During that time the art of cartography stood still. The Romans had use for little but what they sometimes called "painted roads." These maps measured sometimes a foot by twenty feet and looked not unlike our railway maps. The only Roman map of imperial times which we know to-day is that in the Imperial Library of Vienna, bearing the name TABULA PEUTINGERIANA. It is itself of the 13th century but follows one of a thousand years earlier.

During the Middle Ages (500–1450 A.D.) cartography actually went backwards. Fanatical exponents of the religious orthodoxy of the day looked askance at scientific progress and little encouragement was given to pursue any branch of human learning.

⟨The idea of a spherical earth was placed under the ban of the Church, and that of the disc, or rather wheel, was officially approved.⟩ Hence "wheel map" is a term sometimes applied to the maps of the earlier Middle Ages. But there were few even of these, for map-making had practically ceased to exist. Charlemagne, however, is said to have had a huge map of the world made for the instruction of his people. Unfortunately it was engraved on three tables of silver and his grandson put the largest to what he considered a more practical use, by breaking it into small pieces to distribute among his soldiers!

About the middle of the 12th century Roger, King of Sicily, sent men to all parts of the known world

to collect geographical data. These facts he put into the hands of an Arabian named Edrisi, who compiled a world map, chiefly from the new material, and engraved it on a round table or globe of silver. This map was superior to anything that had preceded it and stimulated to some extent the study of geography. Edrisi also wrote a book on geography in which, when he had to refer to the old stories and traditions of impossible things, he generally added the phrase, "God only knows how this is." One more unique map must be mentioned before we come to the period when they could be multiplied by the arts of engraving and printing. Toscanelli*, a learned geographer of Florence, constructed a map the chief object of which seems to have been to show more accurately that portion of Asia which lay, as he supposed, just across the ocean to the west of Europe. He sent it and a personal letter to Columbus in 1474. In this map, probably projected after the manner of Ptolemy, the distance from Lisbon across the Atlantic to Asia is shown as 6500 geographical miles, which is about half the actual distance. Perhaps the influence of this map, and a too great reliance upon Ptolemy, were chief contributing causes which led to the miscalculation of Columbus regarding the distance he should have to sail to reach India. Perhaps, therefore, he did not have *all* the courage for which we give him credit and possibly this error contributed toward advancing by many years the discovery of the New World.

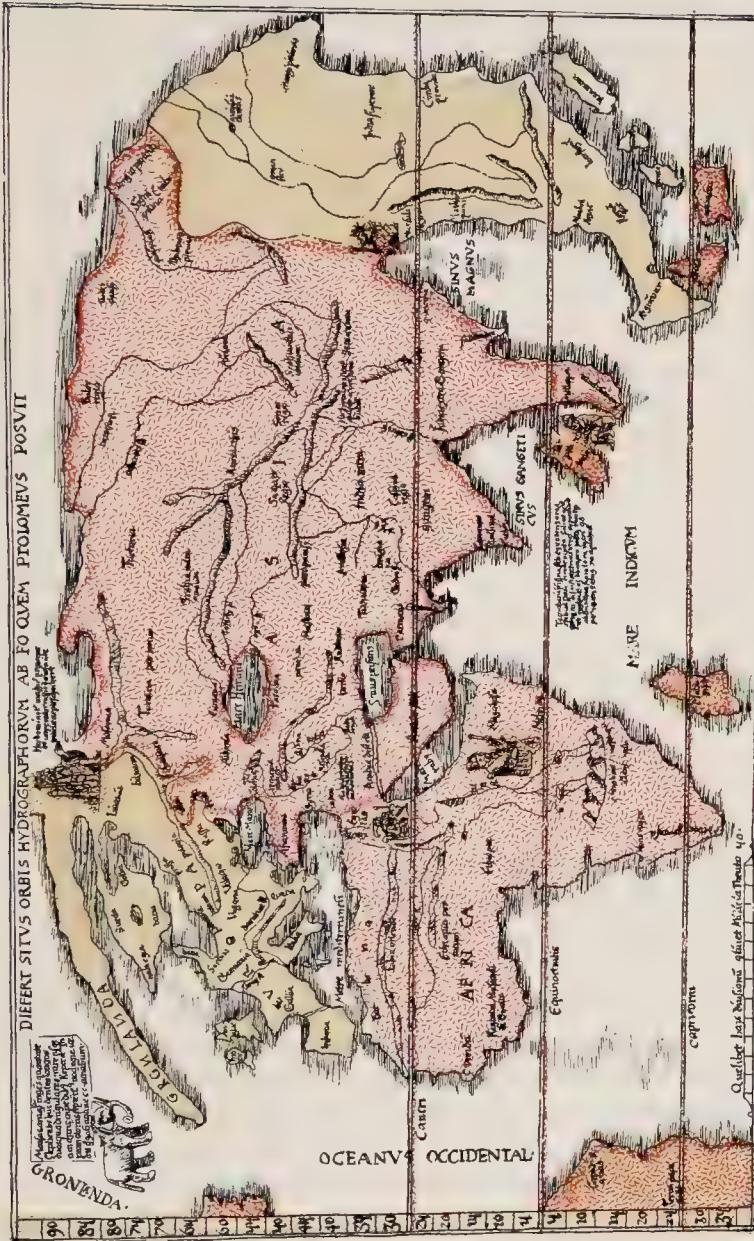
During this dark period in Europe, the Arabians throughout Asia gave careful attention to studying, collecting and preserving geographical facts, although this was chiefly in connection with their study of astronomy. To the Arabic translation of

* Dr. Stevenson doubts the whole Toscanelli story.

the work of Ptolemy we owe its preservation. Their maps, instead of giving the natural configuration, are made up of straight lines and geometrical curves, hence are neither valuable nor easy to understand.

Toward the close of the 15th century, cartography was aroused to a new and permanent life by the simultaneous publication of translations of the important works of Strabo and of Ptolemy. This awakening was further stimulated by the numerous exploring expeditions of the time, as well as by the possibilities of multiplying maps through the new arts of engraving and printing. Ptolemy exercised infinitely greater influence than Strabo, chiefly through the maps based on his facts, which accompanied the translation of his *GEOGRAPHIA*. The first edition with twenty-seven maps roughly cut on wood blocks, appeared at Rome in 1478. Other editions soon followed: Bologna (1482), Ulm (1482, with five contemporary maps), Ulm (1486), Rome (1490, 1507 and 1508). The last had seven contemporary maps, one of which was the famous map of the world by Johann Ruysch, on which he made a bold attempt to harmonize conflicting statements with known facts by showing Greenland a peninsula of Asia! This map shows a coast line similar to de la Cosa's, hence it was the second *engraved* map that showed America, Waldseemüller's wall map being the first.* The edition of *PTOLEMY*, of 1511, contained the Bernard Sylvanus map in which America, more fully and accurately laid down than in the edition of 1508, appeared under the name of "THE LAND OF THE HOLY CROSS." The following year a Polish edition of *PTOLEMY* was issued by John de Stobnicza. In it he followed Waldseemüller (1507) and attempted to project the spherical earth on a plane. In spite of the

* Dr. Stevenson says that the Gasparo Contarini map, 1506, recently added to the British Museum, is the first.



The World. From an early 16th century edition of PROLEMY. In the collection of Mrs. Nathaniel Bowditch Potter.
Showing portions of Newfoundland and South America, and Greenland as a peninsula of Europe.

fact that the Pacific Ocean was not discovered until next year South America is remarkably correct on the both east and west coasts, and it is the important continent; the northern one appears as a peninsula of it. Then followed the Strasburg edition of 1513, with forty-seven maps prepared by Waldseemüller, one of which, the so-called "Admiral's Map," showed America. Before the close of the century twenty-five other editions appeared: German, Swiss, French, Italian. Is it any wonder that Ptolemy, who had been held supreme in the fields of astronomy and geography for nearly fourteen centuries, should dominate the cartography of those first years when it was possible to multiply maps by printing? His erroneous conclusions, such as the extreme length of the Mediterranean sea, were perpetuated in all the maps (not, however, the Portolan charts) throughout the 16th and 17th centuries. The de Lisle world map of 1700, most of it founded upon comparatively accurate astronomical observations, was the first map that corrected the errors of Ptolemy and his followers.

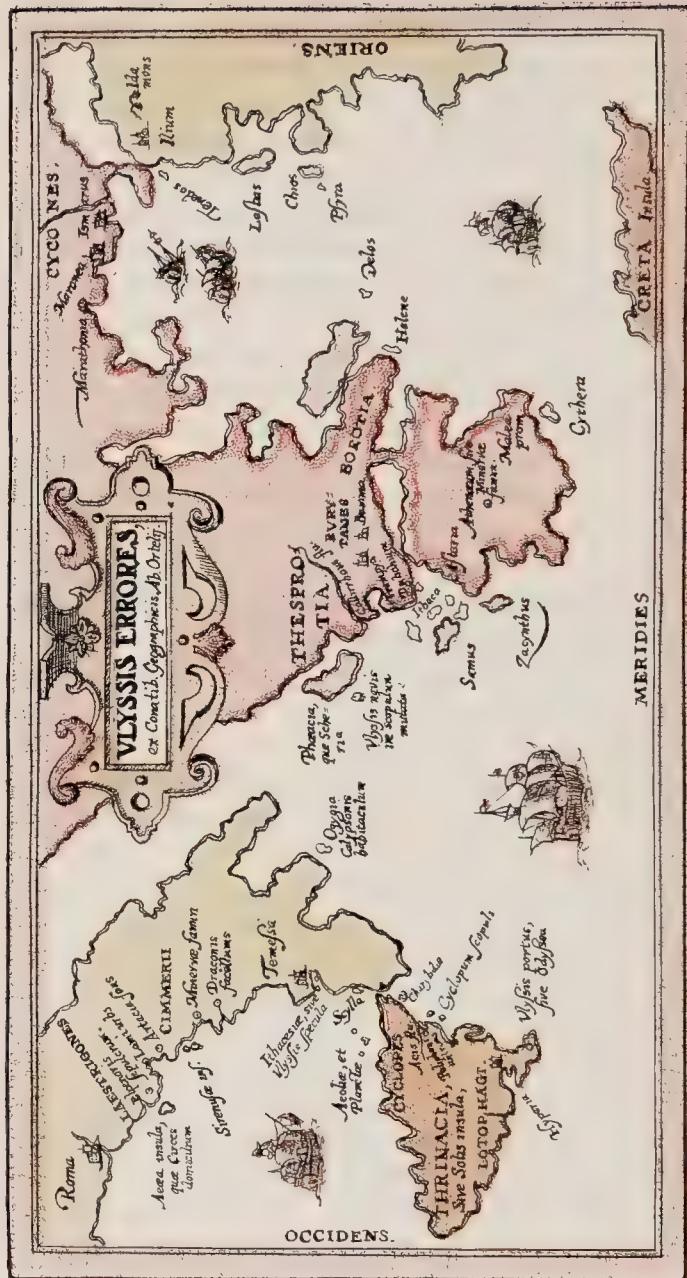
Charts—maps of the sea—as we know them, came into existence early in the 13th century, although such things are mentioned by Ptolemy. The famous Portolan charts* (of which the Hispanic Society of America possesses over seventy) date from the first decade of the 14th century. They are strikingly accurate, but charts marked with degrees are seldom found prior to 1500. It is doubtful, therefore, that Prince Henry, the Navigator, (1394-1460) was aided by them when laboring, single-handed, to enthuse his people over what lay beyond Cape Nun, in Morocco. At first thought it seems a remarkable thing that this cape was then generally regarded as the farthest outpost of the earth, for we know that there is in the Laurentian Li-

* See *Portolan Charts*, by Edward L. Stevenson, New York, 1911.

brary at Florence, a chart of the whole of Africa made not later than 1351. But we must keep well in mind that Italy was not Portugal, that this chart was a drawing of which there were no duplicates, that in Prince Henry's time and long afterward this chart may have been absolutely unknown to its chance owner. In some such way we must explain many of the seeming inconsistencies in the accumulated knowledge of the world, in the history of exploration and of map-making. Such, for instance, was the teaching of the spherical form of the earth several centuries before Christ; a doctrine practically lost sight of for hundreds of years and brought to light again as new and dangerous in the 15th century. Another striking instance concerns America. Ortelius, in 1570, represented California on his maps as a peninsula, yet for well over a hundred years afterward it appeared on most other maps of North America as an island!

We have been led into this digression by speaking of charts, but with charts, *per se*, we are not concerned here, nor must we give much space to the history of hand-drawn maps, unique pieces of cartography that appeared here and there throughout Europe. These were seen by few, and their influence necessarily was greatly restricted. There are, for example: the so-called "CATALAN" MAP OF THE WORLD (1375), now in the National Library, Paris; one in the National Library, Florence (1417), of the whole world as surmised by its cartographer; a Genoese elliptical map of the world (1457), in the Pitti Palace, Florence; not to speak of others, each, in its way, of great interest. Many atlases of unique maps were made in Italy alone during the 16th century.

Cartographers of Spain, Portugal, Greece, and France, were also producing maps during the 15th and 16th centuries. Juan de la Cosa, a Basque, drew,



The Wanderings of Ulysses. Published by Ortelius, 1597.

in 1500, a map of the world in which the coasts discovered by Columbus, with whom the cartographer had sailed, were for the first time introduced. A year or two later Alberto Cantino, an Italian, produced a map which showed a bit of America. Another early map in which it appears is at Weimar, dated 1527, probably by Fernando, the son of Columbus. It is a long story and a fascinating one, this history of the early world cartographers, but it must, perchance, be left in this incomplete state, for the purpose here is to consider *printed* maps, produced in quantity, as distinct from the single, *hand-drawn* sort.

Reference has just been made to some hand-drawn maps that showed parts of the yet unnamed new land in the West. Although slightly out of chronological order it is perhaps well to refer here to the first map — drawn or printed — on which the fateful name "AMERICA" appeared. Curiously, this was a wall map — one of the first ever made. It measured 4' 6" x 8', and was printed from twelve wood blocks in 1507, although it bears no date. It was made by Martin Waldseemüller, a German cartographer, at St. Die, a town in Lorraine — although his name does not appear on it. Its existence was unknown until in 1901 the Rev. Joseph Fischer, S.J., of Austria, discovered one at Wolfegg Castle in Germany. It is a "proof," and still in the original twelve sheets, to which fact we undoubtedly owe its preservation, since the entire edition of a thousand copies, issued for wall use, has disappeared. Translated from the Latin the title reads : "MAP OF THE WORLD ACCORDING TO THE TRADITION OF PTOLEMY AND THE DISCOVERIES OF AMERIGO VESPUCCI AND OTHERS."

Accompanying the map there was a small explanatory pamphlet in which occur these words : "But now that these parts have been more extensively



Tartary, China, Japan and North America. Showing California as a peninsula in the latitude of Japan. Published by Ortelius in 1573.

examined, and another fourth part has been discovered by Americus Vespuccius, a man of sagacious mind, I do not see why we should rightly refuse to name it America, to wit, the land of Amerigen or America, after its discoverer, Americus, since both Europa and Asia took their names from women."*

*Ad
Americo*

*Nunc vero & hec partes sunt latius lustratae &
alia quarta pars per Americu Vesputium(vt in se-
quentibus audietur) inuenta est: quā non video cur
quis iure vetet ab Americo inuentore sagacis inge-
nij viro Amerigen quasi Americi terram/ sive Ame-
ricam dicendam: cum & Europa & Asia a mulieris-
bus sua sortita sint nomina. Eius sitū & gentis mo-
res ex his binis Americi nauigationibus quē sequū
tur liquide intelligi datur.*

Facsimile of Waldseemüller's suggestion to call the new continent America

Accordingly Waldseemüller with splendid initiative, printed "America" on the portion of land we now call Brazil. So the thousand wall maps bearing the name America went on their mission throughout Europe, and they performed it with surprising thoroughness. Six years later Waldseemüller put out the Strasburg, 1513, edition of PTOLEMY. In it was a small map, similar to the large one, on which the name of Americus Vespuccius had been honored. Now, however, Waldseemüller prints the frank statement that to Columbus was due the honor unwittingly given to Vespuccius. But it was already too late. The fates had cast the die for America, and America it will be for all time.

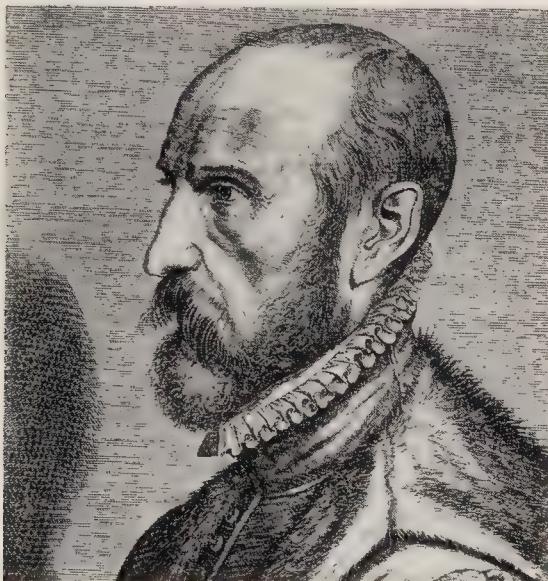
When the first multiplying of maps began, through the art of engraving, the work was done on wood. The first dated wood block, now extant, was made in

*John de Stobnicza, in his introduction to a Polish edition of PTOLEMY in 1512, says practically the same thing, suggesting his acquaintance with Waldseemüller's pamphlet.

1460. As knowledge of the earth's surface accumulated and rivalry between the cartographers waxed warm, the desire developed to give more and finer detail, hence the gradual adoption of copper plates in place of wood blocks. But for several generations the old method of making maps by drawing them, one by one, went doggedly along, as was the case with the making of manuscript books for a century after Gutenberg. The Dutch cartographers carried copper plate maps to the highest degree of excellence about the middle of the 17th century. For about two hundred years more copper held off all rivals, but finally in its turn gave way to lithography, which is easier of manipulation and has greater and less expensive possibilities of larger editions. Whatever may have been the economic gain, there can be no doubt that it was unfortunate from an artistic point of view. If one has doubts let him put side by side a Dutch map of the 17th century and an American one of the 20th, an English map "performed by John Speede," and one made yesterday.

In the 16th century cartographers multiplied rapidly. In 1570 there were about a hundred who were well known. Fifteen years later there were one hundred and seventy, the Dutch being well in the lead numerically and artistically. Of this number two men are vitally concerned in the development of cartography. Abraham Ortelius (1527-1598) was a rich man and a learned, being at once bibliographer, mathematician, antiquary, geographer and cartographer. With the publication of his *THEATRUM ORBIS TERRARUM* modern cartography began, for up to that time all maps were extremely scarce and extremely incorrect. This finest collection of maps that had yet appeared was printed at the famous press of Christopher Plantin, of Antwerp, in 1570. Although

the THEATRUM bears the name of Ortelius he carefully credits many of the maps to other cartographers. A number were made by Mercator. He had gathered together the best that each country afforded, then with loving discrimination he made his selection.



Abraham Ortelius. From the portrait by Galleus.
*"Ortelius made it possible to see the World.
Galleus enabled the World to see Ortelius."*

Another distinction of this publication is that all the maps were engraved on copper, whereas previously wood had generally been used. Ortelius evidently considered that wood, in the casual way in which it was then manipulated, was too clumsy a material for fine work. His first edition, containing fifty-three maps, had Latin text. The seventh edition (1573) had sixty-nine maps; the twelfth (1579) had ninety-two. Editions appeared in German, French, Dutch, English, Spanish and Italian. There were in all thirty-three folio editions,—the last appearing in

1624. No previous collection of maps had had such wide distribution; they had not deserved it. Ortelius knew his profession thoroughly for he began life as a collector and colorer of maps. He was the friend of such men as Lipsius, Mercator, and Camden. By his broad knowledge and patient industry he had produced something that was justly and loudly acclaimed by all his contemporaries and which even to-day holds an honored place. When Ortelius died, Antwerp, which had wisely honored him in life, went into mourning.

The other great pioneer of modern cartography was Mercator. It is said that he delayed for years the publication of his own collection of maps in order that Ortelius, whom he addresses as "that most illustrious man and my especially dear friend," should enjoy in full the triumph he so well deserved. No conflict of interest or jealousy ever interrupted the even flow of the lifelong friendship of these two remarkable men. Gerhard Kramer, "nostri saeculi Ptolemaeus," as Ortelius calls him, but known to fame simply as Mercator, was fifteen years the senior of his friend. He began life as a colorer of maps, and a manufacturer of globes and of mathematical instruments. He had already won for himself first place among the cartographers of the world some sixteen years before Ortelius published his *THEATRUM*. In 1569, a year before the latter appeared, he had put forth that map of the world in which his famous method of geographical projection was first used.*

By this method of projection the points of the compass preserved the same direction all over the

* In the library of the American Geographical Society, New York, there is an edition of *PROLEMY* published in 1578, once the property of Mercator, containing one of the two known copies of a "double heart projection" of the world by Mercator, which he made in 1538.

MERCATOR'S PROJECTION.—It was no new thing to convert the spherical representation of the earth into a plane on the cylindrical principle, for it

map. Its author seems soon to have forgotten it and the mariners were prejudiced against it, nevertheless, in about thirty-two years "Mercator's projection" was universally employed for charts, and is now used —and for maps as well. Mercator died, full of years and honors, in 1594, † a few months before the delayed publication, by his son, of his collection of maps. But he had seen it well under way and had chosen for it the name "ATLAS," which name met popular favor and rapidly superseded all others.

Mercator told Ortelius (what is true of the work of both men), "I am perfectly convinced that your work will be salable through all time." And who shall say that the blood of these fine old scholars did not course faster through their veins when, peering ahead, they saw generations unborn gazing with interest at their work? It may well have been, for such men had imagination and faith. They loved their work and they felt no shame at the thought of it being studied so long as interest in maps lasted,

had been done in the fourteenth century; but no one had devised any method by which it could be used for a sea-chart, since the parallelizing of

the meridians altered the direction of point from point. Mercator seems to have reasoned out a plan in this wise: A B and C D are two meridians drawing together as they approach the pole. If they are made parallel, as in E F and G H, the point 2 is moved to 3, which is in a different direction from 1, in the parallel of latitude, I J. If the line of direction from 1 to 2 is prolonged till it strikes the perpendicular meridian G H at 4, the original direction is preserved, and the parallel K L can then be moved to become M N; thus prolonging the distance from 1 to

5, and from 6 to 4, to counteract the effect on direction by perpendicularizing the meridians. To do this accurately involved a law which could be applicable to all parallels and meridians; and that law Mercator seems only to have reached approximately. But the idea once conveyed, it was seized by Edward Wright in England in 1590, who evolved the law, and published it with a map, the first engraved on the new system, in his *Certain Errors of Navigation*, London, 1599.—From the NARRATIVE AND CRITICAL HISTORY OF AMERICA by JUSTIN WINSOR.

† Charles P. Daly, President of the American Geographical Society, said in 1879, that so little was known regarding Mercator that once, when he was speaking of him, a distinguished Admiral exclaimed, "What! was there such a man as Mercator? I always supposed Mercator's projection meant the merchants projection."

for it was honest work and it was the best that was in them.

The success of the Ortelius and Mercator maps was such that Holland found herself the center of this new, rapidly growing industry. The cartographers

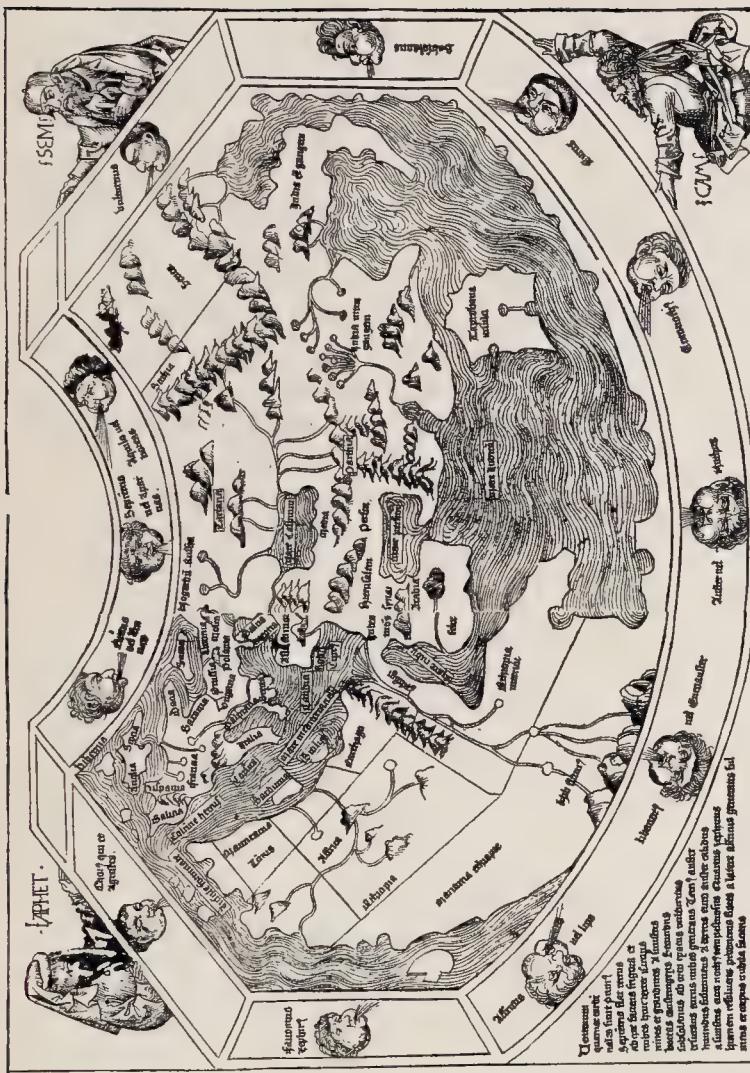


Gerard Kremer, known to fame as Mercator.

of the Low Countries made maps in the days immediately following Ortelius and Mercator, and for a century afterwards, in truly amazing quantities. Such names as those of Hondius, Blaeu, Visscher and DeWit, map-makers of Holland, represent not individuals, but families.

Jodocus and Henricus Hondius, father and son, the successors of Mercator, published no less than fifty editions of Mercator's ATLAS and hundreds of maps of superior quality, but the most important name, after Ortelius and Mercator, is Blaeu.

Willem Janszoon Blaeu, a state official (with duties



The World, From the NUREMBERG CHRONICLE. 1493.

concerning ships' logs and charts), and his two sons, Jan and Cornelis, had before 1655 published about four hundred maps, most of them in folio atlas form, with editions in French, Latin, German, Spanish, Dutch and Flemish. The first map, the Blaeus published was one of the world dated 1606. Among the Blaeu maps that have a special interest for us are : **AMERICA, OFTE NIEUWE WERELDT; VIRGINIA; FLORIDA;** and **NIEU NEDERLANDT, EN NIEU ENGLANDT.** They are all highly decorative in design and color. Curiously the New England has the West at the top. In 1655 Blaeu issued, separately, a new map of America framed with small pictures of towns and representative natives both in costume and without. Now there is no denying the fact that the Blaeu maps are things of beauty, perhaps the most decorative ever made, but one must have doubts of their accuracy. For one thing many of them lack the lines of latitude and longitude and sometimes they seem purposely drawn out of scale to aid their artistic appeal. But who, nowadays, would not forgive all their inaccuracies, and more, for the sake of their intrinsic beauty? The Blaeus made globes, too, that excelled in every point all that had preceded them. The third generation of the family carried on the business until 1672, when their publishing house in Amsterdam was destroyed by fire, with most of the map plates.

Then there was Blaeu's rival, whose name usually appears as Joannem Janssonium (but sometimes Jan Jansson, or Joannes Jansonius), who had married the elder Hondius's daughter, and had from his father-in-law a wealth of geographical material. A Dutch atlas in six volumes, a French in six folios, a German in nine folios, and a Latin in two, came from this press. The Janssonium maps and Blaeus

were similar in character and between them there is little to choose artistically. In this list, too, must come Pierre Mortier, of Amsterdam, whose maps were of the highest quality considered from every point of view; decoratively they rank with the finest that the world has seen. But the Visschers, the deWits (although they owned some of the Blaeu plates saved from the fire) and other late 16th century Dutchmen could not maintain the high standard of their predecessors and the glory of leadership in cartography passed from the low countries to France.

Among the French cartographers, after the printing of maps began, were Oronce Fine, who, in 1531, made an interesting map of the world; Guillaume Postel, the learned but visionary traveler, who, in 1570, made a new map of France, only one copy of which has survived, and the Franciscan Andre Trevet, who published a two volume universal atlas, in 1575. In 1594, Maurice Bouguereau published at Tours, the THEATRE FRANCOIS. This work laid the foundation of the cartography of the provinces of France, although most of its maps were copied from those by Ortelius and Mercator. Re-issues appeared frequently bearing the names of Jean Boisseau and of Jean LeClerc who had also, in 1612, brought out the great map of France cut on wood, which had taken sixteen years to prepare. Champlain's maps of the New World (1612, 1613) appeared in the discoverer's VOYAGES. Besides several local maps there were the two large ones of the territory which he had personally surveyed. These were the first maps that showed New England at all accurately, Lescarbot's map made in 1609 being very imperfect. In 1632 appeared Champlain's greatest and more detailed one. All his maps influenced the Dutch maps that appeared a few years later. In



The Kingdome of Scotland. "Performed by John Speede," 1610. Colored by hand in the manner distinctively his own.

1634 a collection of maps was published at Paris by Melchior Tavernier, a Fleming, and said to have been a pupil of Ortelius. A greater name in French cartography, in fact the most celebrated of all, is that of Nicolas Sanson (1600-1667), who is said to have completed, when but eighteen years of age, a map of France in six sheets. He published more than three hundred maps. The high reputation that his work attained was well sustained by his sons Adrien and Guillaume, who succeeded him. Associated with the Sansons in some of their work was Hubert Jaillot, a man who stands high in the annals of cartography for accurate workmanship and effective decoration, especially in the cartouches, which are elaborate and beautiful. Nicolas Tassin, in 1655, produced a miniature atlas ($6'' \times 4\frac{1}{2}''$) of fine workmanship, covering the whole world. Claude and Guillaume de Lisle were able exponents of exact cartography, as were also Jean Baptiste Bourguignon d'Anville, whom some think "raised geography to the dignity of an exact science," Philippe Bauche, his successor, Geographer to the King, and the Robert de Vaugondys, father and son. The latter published the *ATLAS UNIVERSEL* (1757), partly from material inherited from their Sanson ancestors. In 1751, Roch Joseph Julien brought out his great military map of France. These two works "mark the transition from speculative cartography, if it may be so called, to that based on exact observation on the ground, and the fixing of points by triangulation." Cesar Francois Cassini de Thury and his son, Jacques Dominique, completed, in 1789, their forty-five years' labor by publishing the last sheet (the 180th) of their *CARTE GEOMETRIQUE DE LA FRANCE*, considered the greatest piece of topographical work ever executed.

Italy, in the 16th century, produced a number of first rank cartographers; Gastaldo, of Venice, and Forlani, of Verona, issued maps of almost all parts of the world, keeping pace with the numerous discoveries. They were followed by Magini, of Padua, and Nicolosi, who worked in Rome, and in the 17th century by P. Vincent Coronelli. Rizzi-Zannoni, in the late 18th century, produced some of the finest decorative maps extant. He had a very effective, original technique.

The year 1560 saw published Pedro de Medina's new map of Spain and Fernando Alvarez Secco's new map of Portugal.

In Germany, Johann Baptist Homann, of Nurnberg, made a famous collection of maps and he published many that were more nearly correct than those of his Dutch contemporaries, the Blaeus, but far less decorative. These had a wide sale. A few years later there were two other noted cartographers in Nurnberg, Johann Matthias Hase and Tobias Mayer.

The first map of Scandinavia was produced in 1539 by Olaus Magnus, whose maps are wonderfully rich in fabulous monsters of the deep. Adrian Veno made a much better one in 1613, and Hondius engraved it for him. Still more accurate ones were drawn by Anders Bure and published in the Blaeu atlases (1650-1660).

American map-makers scarcely come within the bounds set for this brief survey. We are tempted, however, to mention that Claudio Clavus (fl. 1424), a Dane, is called the first American cartographer; but the "America" of which he made a map is more generally known as Greenland! Lewis Evans, of Philadelphia, issued, in 1755, a General Map of the Middle British Colonies in America. The map shows the country from the Falls of the Ohio to Narragan-



America. From the Blaeu Atlas of 1635. The design follows Speed but the coloring is that of Blaeu, which was distinctive and beautiful.

sett Bay, and from Virginia to Montreal. It was the best map of the region, was printed by Franklin, dedicated to Governor Pownall, used by Braddock in his campaigns, and became therefore very famous and valuable; so much so, indeed, that the London publishers pirated and repeatedly reissued it. Henry N. Stevens has written an exhaustive monograph upon the subject. It was a remarkable product of the early Colonial press.

Sebastian Cabot, born in Bristol, England, son of the Venetian navigator, drew his great map of the world, now in the University of Paris, in 1544. A copy of this is in the great collection of maps at Ottawa, Canada. In Elizabeth's time there hung in Whitehall Palace "a wonderful map" made by Cabot to prove his claims of discovery in America. It disappeared before James I came to the throne. Within a few months there have been rumors, perhaps baseless, of its discovery in the hands of a London dealer in rare books.

Humphrey Lhuyd*, a Welshman, published in 1569 the first modern map of England. Christopher Saxton, in 1579, published a set of 35 maps of English shires, engraved by Dutchmen and Flemings, from his original scientific surveys. These are now very rare. Twenty years later Van den Keere engraved a set of copies. In 1586 appeared Camden's BRITANNIA, the inception of which, he says, he owes to the friendly persuasion of Ortelius during his visit to England in 1577. The engraving was done by William Kip and William Hole.

Speed's THEATRE OF THE EMPIRE OF GREAT BRITAIN was published in 1611, at Amsterdam, by Hondius. Later he issued a general atlas entitled

*In the THEATRUM of Ortelius, out of the few pages of text accompanying the fifty-three maps, no less than seven are devoted to an article on the island of Mona, by Humphrey Lhuyd.



Guinea. Dedicated to Dr. Tulp, of Amsterdam. Published by Blaeu, 1631. Rich in color
and interesting throughout.



Detail of a map of Lithuania. Published by Blaeu, 1646.

PROSPECT OF THE MOST FAMOUS PARTS OF THE WORLD. Exceedingly interesting maps are these "performed by John Speede,"—a friend of Camden, and like him a writer as well as a cartographer. The maps are accurate so far as his knowledge goes, and most seriously drawn, which is rather surprising, for the first impression is that a man of talent and imagination has been amusing himself by drawing ships and whales, big sea fights and diminutive land battles, elaborate cartouches, and lovely little fairy cities, and that the map, *per se*, was but an afterthought—something to tie the rambling sketches together and excuse the artist in the opinion of scholars and gentlemen. Whence came Speed's charm? He had been brought up a tailor and spent most of his life plying the needle. To map-making he turned for recreation and in it his artistic nature found a joy which in its turn gave his creative work that charm rarely absent from a labor of love. Something of the man's modest personality is apparent in the closing words of the preface to his THEATRE. "In showing these things, I have chiefly sought to give satisfaction to all, without offence to any, whereof if I faile, yet this to myselfe have I gained, that whilst I set all my thoughts and cogitations hereon, I had small regard to the bewitching pleasures and vaine enticements of this wicked world, neither had I leisure to be led by an ambitious desire to raise my station above the levell of my equals, or with base flattery to follow, and fill the eares of FORTUNES DEPUTIES the raines of these intents checking the bit of affection into another way. * * * *

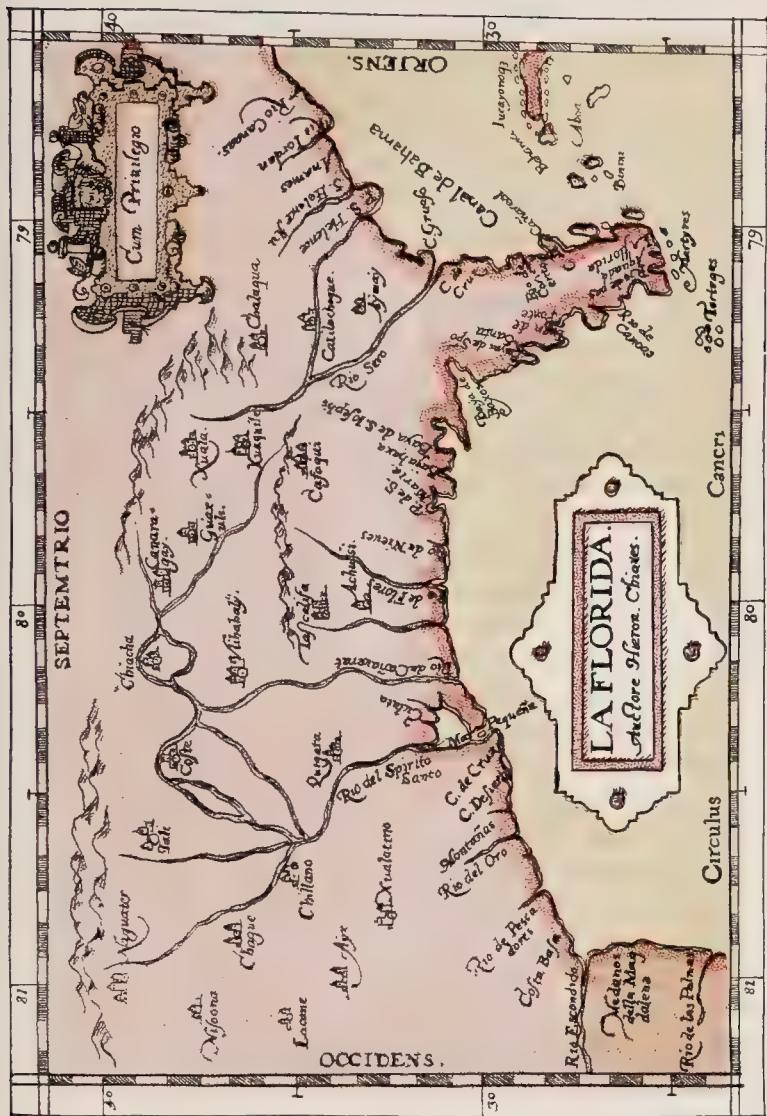
"Therefore in the sight of the Congregation of the Lord, and in the audience of our God, *let us keepe and seeke for all the Commandementes of the Lord our God, that wee may possesse this good Land, and*

leave it for an inheritance for *our* children after us forever. THINE IN CHRIST JESUS, JOHN SPEED."

Aaron Arrowsmith collected original data and published over a hundred maps, all of high reputation. John Seller, John Senex (who, in 1709, dedicated one of his maps to Elihu Yale), John Norden, Thomas Kitchin, Thomas and Emanuel Bowen, published maps and atlases in England in the 18th and early 19th centuries. Few of these have especial interest or originality.

On the other hand, the maps of Herman Moll, who established himself in London in 1698, have a distinction and a quiet beauty with their ivory-toned paper and harmonious vari-colored outlines, that make a strong appeal to one's interest. Some are small, (10 x 12) and others are unusually large (36 x 48 and over). Most of them are crowded with ingenious and often unwittingly humorous notes, some of which will be found quoted on pages 47-52 John Cary, toward the end of the 18th century, and well into the 19th, produced maps in England which had charm and fine workmanship. He is spoken of by Sir Herbert George Fordham, the great English authority on maps, as "perhaps the most representative, able and prolific of English cartographers." He was a tireless publisher of maps, and globes and road-books in London for over a half century, yet the encyclopaedias do not know him, and even Fordham can lay his hand on but few and disconnected facts concerning the man himself.

But we have now entered the 19th century, where we may well leave the historical outline of map production, for it is outside the purpose of this pamphlet to speak of ordinance surveys and other modern maps that have reached the acme of scientific perfection, and have, perforce, lost their artistic appeal.



Florida. Published by Ortelius, 1597.



II ORNAMENTATION AND COLORING

THE Greeks and Romans called maps "pictures," and all maps are pictorial to a greater or less extent,—they may be drawn to scale, so far as large distances go, but the rivers and roads, the towns and bridges, in fact, most of the things that make maps useful are represented pictorially and not *strictly* to scale. In the hands of artistic cartographers there are always chances of maps becoming almost wholly decorative.

To be of practical use a map must (1) conform to a scale; a definite, uniform relation between its large parts and the actual size of nature. On most engraved maps will be found a graduated line, a scale, showing by its divisions the number of miles that correspond to any space measured on the map. Sometimes there are more than one on the same map. Every country had its own method of measurement and sometimes the unit of measurement of all provinces of the same country was not the same. Nautical miles, of course, differ from land miles, hence the whole thing is somewhat confusing, there having been no sort of uniformity among the map-makers until quite recently.

A map must have (2) orientation. Early maps sometimes had the South at the top, in fact, in a collection of maps by William Green, called "A Picture of England," published 1804, most of the maps were so drawn. Many mediaeval maps have the East at the top. Blaeu's New England has the West, and many others of Blaeu's do not conform to the now universal custom of having the North at the top. The word "orientation" is derived from the idea of



New England. Published by Blaeu in 1635. The West is at the top. The ships, animals, cartouches, etc., make this one of the most desirable of American maps.

the Christian looking to the East, and on old maps the East is indicated by a cross. The compass roses, with their eight or sixteen points, indicate not eight or sixteen directions but so many points from which the wind comes.

A map must have (3) location, that one may know what portion of the earth's surface it purports to represent. Lines of projection, or lines of latitude (distances north and south from the Equator) and longitude (distances east and west from any given line) were used on the very early maps. The measurements are given in degrees, minutes and seconds, a system first evolved by the Babylonians. With the lines of latitude there was a general uniformity, but the first meridian of longitude (the line from which all distances east and west are measured) gave infinite trouble and has been moved one way or the other in a most remarkable manner. Martin Cortes, in *The Arte of Navigation* (Seville, 1556) ingenuously remarks that the first meridian should be drawn "through the Azores, or nearer Spain, where the chart is less occupied." And this suggestion of locating it in the most convenient place was cheerfully received and usually acted upon. It would seem as though each island in the Azores, the Canaries, and the Cape Verde groups was chosen, sooner or later, by one or another cartographer. The Spanish and Portuguese used the point 370 degrees west of the Cape Verdes, sanctioned by the Pope; the Dutch, English and Germans, being Protestants, used any point but that one.

Fordham thinks that John Seller, in 1676, probably was the first to use the meridian of London, which for over one hundred years was in common use on all English maps. In 1794 that of Greenwich was first used on A NEW MAP OF ENGLAND AND

WALES AND PART OF SCOTLAND, by John Cary, and it has now received international sanction.

No maps before the 19th century used contour lines, which lines have further developed into a series of tones. Many other developments have come but we cannot go into detail here. Mercator, Ortelius, Speed and other early map-makers at first used a conventional waved line on all water surfaces, which gave the maps an unfortunate gray appearance, especially when they were not colored. The Dutch and French cartographers, however, left the water untouched, and this method soon became all but universal. Gigantic trees represented forests, as large ships and great fish represented the sea. Soldiers, citizens and laborers, larger than churches, enlivened dull places on the map's surface. Sometimes towns were shown on an exaggeratedly large scale that seemed to dwarf distance and bring the cities and towns ridiculously near together. Sometimes, too, generally later, the towns were drawn with careful detail in the margin of the map.* Roads were not marked on the early maps, although bridges and fords were indicated. Churches, abbeys, monasteries, etc., were represented as were the towns and the ships, very much out of scale.

In the early days the coloring of maps by hand was a regular business at which Mercator, Ortelius, Boisseau, and many another good man began his life's work, and found it not drudgery but rather a materialization of pleasant dreams. And we have these maps to-day, on finely toned hand made paper just as they came from their hands,—full of har-

* Expeditions to the New World used to carry draughtsmen to sketch the coasts in order to locate particular points. Such a sketch book carried on Drake's last voyage has lately come to light. It was made "to enable future expeditions to successfully locate the Spanish forts and towns for purpose of attack." There is a note on one page of the death of "Sr Frauncis Dracke" *** "righte of the Ilande de Buena Ventura. som. 6. Leagues at see whom now resteth with the Lorde." FORDHAM.



The Pacific. From the 1592 edition of *Ortelius's THEATRUM*. The ship is that of Magellan. (See p. 57)

monious color applied with that same nice regard for composition that is apparent in the drawing. The colors, too, except for the gentle mellowing of time are as brilliant as the day they were applied, because the maps were published in book form and have not been exposed to the light.

Maps were colored much as the customer desired and to any extent that he wished to pay for. When gold was used with the colors it was paid for in gold by the prince or princely merchant who ordered it. Sometimes this decoration was done in transparent colors, so that the details of the map were not lost; sometimes it was crudely done so far as the map was concerned, in opaque pigments, by one who had little interest in the result. At other times one feels that the effort was to make something beautiful even if it involved a certain sacrifice of geographical fact. With all their shortcomings these maps have a wonderful fascination for imaginative, romantic minds—chiefly, perhaps, because they were drawn and colored by hands that had a love of decoration to guide them.

As to how far descriptive text on the face of the map should be allowed to interfere with its pictorial clearness is a nice question, since both these qualities are valuable. The maps of Moll and Sanson represent the descriptive class carried to an extreme; their products seem to be almost an attempt to superimpose the features of a book upon a map. While the maps of Ortelius and Blaeu have only the necessary names they are printed in a decorative manner and the whole has in each case a beautifully harmonious effect. The Blaeu maps, taken by and large, are probably the most beautiful product of the art of cartography; in general plan, in harmonious color, in free artistic lettering, in well-drawn cartouches, in ships and in whales there is a nice harmony, a deli-

cate craftsmanship that would be hard, indeed, to duplicate. It is an interesting fact that these Blaeu maps influenced such artists as Vermeer. In a large percentage of his paintings maps are used as an integral part of the composition. In some of them, as in the one seen in the accompanying reproduction, he has painted the detail of the map so faithfully that the original is easily recognized. Other artists : Metsu, de Hooghe, Steen, Ter Borch, to mention only one group, also used maps in their paintings.

Some of the old maps have wide borders or frames filled with pictures of cities and of men and women in gay costumes. Speed seems to have set this fashion ; Blaeu and others quickly copied it. Astronomical instruments and draftsmen's dividers were often used for decoration and to represent the science of the day, this, perhaps because some of the best cartographers were astronomers and mathematicians as well. There were also mariners' compasses,* floral designs, cartouches of split leather, of wood, of stone, etc., fashioned in all sorts of designs. These inanimate objects were usually accompanied by figures of armored knights and soldiers in action, substantial citizens in gay clothes, and blushing milkmaids with pails and stools, cupids intent on business, and mermaids at their toilet ;

“What is it but a map of busy life,
Its fluctuations, and its vast concerns?”—COWPER.

In these old maps one sees the world a bit as it looked to men three hundred years ago. Then, too, there were coats-of-arms ; the brilliant colors, applied with only haphazard regard to the rules of heraldry, scarcely two of the same family to be found alike. Often a great space is filled by ornamental lettering,

* The fact that the magnet turns toward the North is first mentioned in 1187. Flavio Gioja, an Italian, was perhaps the first to make a mariner's compass in Europe. It had been used in China long before. In the 13th century it came into general use in the Mediterranean.

which, when carefully deciphered, is found to repeat information already plainly set forth elsewhere.

It was one of the diverting ways of the old map-makers, who disliked "aching voids," caused by an absence of geographical facts, to fill in with something decorative. They liked their maps to look richly filled so they enthusiastically threw in compass roses in brilliant colors, and arrows, to show the North; elephants and ostriches and wonderful non-



The Soldier and the Laughing Girl.
By Jan Ver Meer.

descript monsters, to show the land; ships, a hundred times too large, and leviathans and behemoths to show the sea. All of which added to the joy of the cartographer's life and to ours centuries later. Nor was appreciation of this humor lost in the time between; Dean Swift, for one, noted it—

" So geographers, in Afric maps,
With savage pictures fill their gaps,
And o'er uninhabitable downs
Place elephants for want of towns."

Through this attractive and distracting atmosphere of unreality and imagination one sees the real matter-of-fact map, and is charmed with it; if one be found who is not, he surely is hopeless. Such a person would probably prefer to consult statistical tables

and lists of dates, in the realm of history, to reading Macaulay, or Parkman or Green.

The coloring and decoration became more and more perfected as time went on and the demand for maps increased. It perhaps reached its height in the Blaeu and the Jaillot atlases of the 17th century. As in all work approaching the artistic the struggle for "perfection" unfortunately resulted in a uniformity and a stiffness that killed its beautiful individuality, and the demand for color and decoration in maps gradually died a natural death.

The chief aim in map-making, henceforth, was to be exact, and it became exact, if nothing else. No color, or decoration, or arrangement, was or is allowed to interfere with the serious record of known facts. Of course a scientific map may turn out to be somewhat artistic, as in the past artistic maps were sometimes scientifically accurate, but the trend from the beginning of the 18th century was toward bald statement of fact,—a gain, certainly, for scientific map-making; a loss, just as certainly, for that class of decorative art that exercises so potent an influence over the imagination. Thus maps gradually ceased to be a delight for the few and became the invaluable scientific helpers of the many.

As a rule English maps did not have the wealth of color that was common elsewhere in Europe, nor did they have much imagination expended on them except in the case of those "Performed by John Speede." These are curiously decorated with dull but decided colors that have a quaint harmony. A characteristic thing about Speed maps is that all important rivers have their courses roughly traced with two colors, one on either side, the whole being six or eight times the width of the water course itself. Ships—usually men-of-war—and grotesque whales abound, while

elaborate cartouches, coats-of-arms and plans of cities are fitted into otherwise blank corners, in well-thought-out ways, giving fine balance to the whole.

Herman Moll, another English publisher of maps, says in his NEW ATLAS (1719) that all the maps are colored according to his direction, and he shows a fine sense of color and harmony in his outlines which are delightful, but one wonders how and why he restrained himself and did not color the fine cartouches found on practically all of them. He used on his maps many large pictures of towns and forts, native industries and indigenous animals. Perhaps to have colored the cartouches would have meant coloring all these engravings also, and the expense would not warrant it. Moll knew his business, but we wish he had been a bit more generous with his color.

The wisdom of the natural law of gradual growth was never better exemplified than in the development of the art of cartography. Suppose for a moment that Mercator and Ortelius, Blaeu and Speed, and the hundreds of other master map-makers had suddenly come into possession of all the geographical facts that they were groping for—the facts which we now have. What would have happened? All their maps would have been as much alike as so many dollar bills, and all quite as appallingly prosaic and uniformly repelling as those produced within memory of the present generation. It was fortunate for the art that the fine old standards of beauty in cartography were set at a time when there was poverty of geographical data and abundance of imaginative ideas; when competition was vigorous and pride strong, and men vied with each other to produce the most attractive thing. These standards set by the cartographers of the 16th and 17th centuries have had a tremendous influence on map design ever since. But for them the maps of to-day would certainly be far less slightly, impossible as that may seem.

III NOTES PRINTED ON OLD MAPS



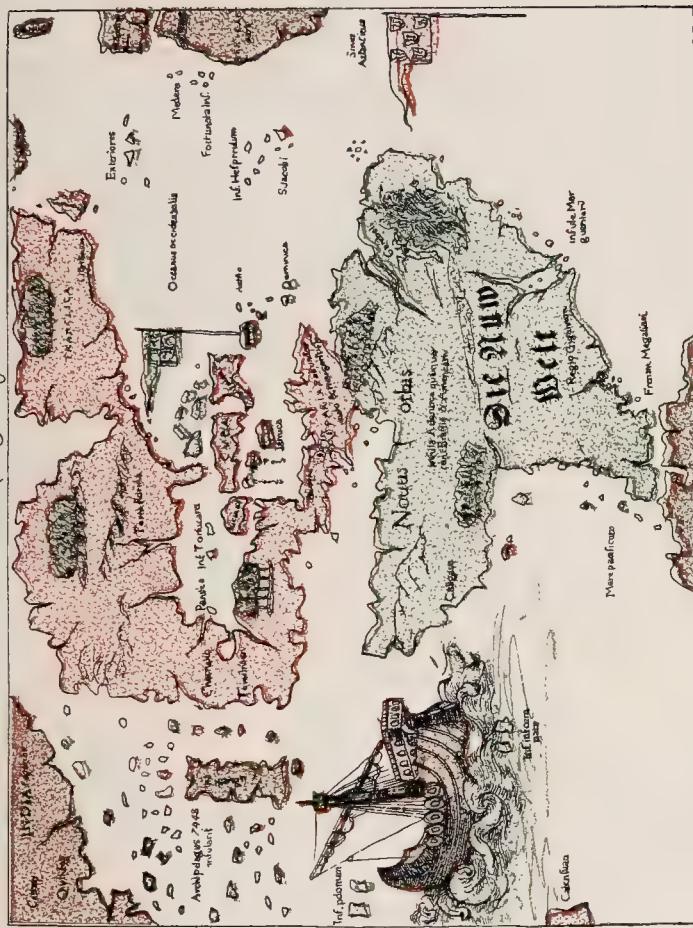
AS the early cartographers, in imaginative mood, had used fabulous animals, fish and ships to fill in blank portions of their maps, thus to decorate and beautify them, so their successors, those particularly of the 18th century, were fond of using these spaces for utilitarian purposes — for instruction and, it must be admitted, for self-gloryification. Therein they printed information, important or otherwise,— often unconsciously humorous, and, frequently, under the guise of righteous indignation they sought to enlarge the beam in their brother's eye, and, by inference at least, proclaim the absence of even a mote in their own.

"The World is in nothing more scandalously imposed upon, than by Maps," says one, "put out by ignorant Pretenders, nor are we cheated only by these Pretenders at home but by others from abroad who *** are encourag'd to publish every wretched Copy that falls into their Hands." On Moll's SOUTH SEA COMPANY map of 1715, we find: "There is lately published a two sheet map of South America, coppied after a very erroneous French Map done at Paris in 1703, and to deceive ye world dedicated to Dr. Halley, and pretended in ye dedication to be corrected by his own discoveries." Senex's NETHERLANDS, of 1714, sounds this warning, "N. B. That all Maps Printed for H. Jalliot [an important French cartographer] and P. Mortier [a reputable Dutch publisher] and brought to England for correct Maps are only Copies from Sanson with all his Errors and several by them Added not to be found in Sanson." Moll goes to the extreme in warning against Sanson's maps. He says the French cartographer is "notoriously false," and he indicates on his own map the exact points marking each "error of Sanson." He further says "You will find him frequently 2, 3, 5, nay 7 Degrees out, and indeed scarce right in any of them." While Moll is at it he sets the world right regarding some others.

"As for ye Dutch Maps all of 'em yet extant, are much alike, and far enough from Correctness. Now it being a great hazard we run in Undertakings of this nature, and we labouring under ye frequent hardships, of having our Maps Copy'd upon us in Holland &c, brought over hither, publickly advertised and sold under other names, to their Profit, and to ye manifest defrauding of us, as well in point of Reputation, as otherwise."



JEAN BAPTISTE D'ANVILLE on his AFRICA (1772) flings the following, apparently at his fellow craftsmen across the Channel, who are so self-sufficient: "The Inland Parts of Africa being but very little known and the Names of the Regions and Countries which fill that vast Tract of Land being for the greatest part placed by Conjecture. It may be judged how Absurd are the Divisions Traced in some Maps and why they were not followed in this." d'Anville goes Moll one better in his generous bestowal of information, handing out chunks like pages from a book. There are no less than ten such on his AFRICA. But these maps that are so full of "conjecture" are a joy. On one of them the geographer says: "I am credibly informed, that ye Country about hundred Leagues North of the Coast of Guinea is inhabited by white Men, or at least a different Kind of People from the Blacks, who wear Cloaths, and have ye use of Letters, make Silk, & that some of them keep the Christian Sabbath." But again comes one who leans over backwards in order to be upright. On his MAP OF THE WORLD (1726), he says: "N. B. That ye Curious must not attribute it to ignorance or negligence, that some Islands are not to be found in this as in other Maps, such as St. Maria d'Aoust, Martin Vaz, dos Picos, & St. Helena Nova in the Atlantick Ocean, and several others in the Eastern; since some



America. From one of the editions of Munster's PTOLEMY. 1540-1552.

of the most Scrutinous of the present Age, have made it their Busines (if Possible) to give us a better account of them, but could never as yet find out any such Islands."



IT would be interesting to know on what basis facts engraved on maps were selected. A small map of TARTARY (1732) has: "Gold is taken out of their own Mines, and no Place in the World produces more Rhubarb, but it is very dangerous Travelling in these parts, for if you are taken by any of their Parties you are an Irredeemable Slave for your life." One of the seven facts regarding Italy, on a map of 1709, is: "Taranto. the Spiders calld Tarantula's have their name from this City, because they abound in ye Neighbourhood. their sting is very dangerous, makes people Weep, Dance, Tremble, Vomit, Laugh, Faint, and Die if they are not relieved by Musick which sets them Dancing and dissipates ye Poison by that exercise." A French map of EUROPE (1709) has these words upon it: "In digging ye gold Mines in America, Lucius Marinæus Siculus lib. 29 Tit. 16. tells us that there was a Medal found stampd with the Name & Effigies of Augustus Caesar to confirm ye probability of this he urges that ye Romans formerly penetrated as far as the Indies. But I leave this to ye Author."

MAP-MAKERS took themselves very seriously, as when one pronounces the Laplanders "the most Remarkable People in Europe," and gives, on one map, no less than five large engravings accompanied by a long "Scheach" of their manner of life; again when, on a map of NORTH AMERICA, the beaver is put forth as the most wonderful thing on the continent and given the place of honor in the decoration of the plate. On a map of SCOTLAND (1714) "the powers that be" were authoritatively informed that "Its manifest by this map, which is founded upon undoubted Authority, how easy it would be to settle the most advantageous Fishery in the World here, and also with a small Charge to make Rivers navigable, for Carrying timber to the Seaside, for there grows excellent good Fir &c in these parts, so that if things were rightly managed there would be no occasion to go to Norway for Wood or to New-found-land for fish; seeing North Britain can Plentifully furnish us with both."



SOMETIMES the natural resources of a country completely absorbed the map-maker's attention. A map of the EAST INDIES is covered with notes regarding the various factories for producing spices, cotton goods, etc. with locations of gold, silver and diamond mines, where the best diggings for precious stones are located, where about "60000 People are employ'd once a year in ye Pearl Fishery on this coast," where "diamonds attract 60000 People digging and sifting the Earth" which work "is a kind of Lottery to ye Adventurers; for if a Diamond exceeds 20 Carats, or 80 Grains, it belongs to the King."—"Terra de Papos. The commodities here, are Gold, Ambergreece, and Birds of Paradise,"—"Banda Islands. Dutch. These Islands produce Nutmegs, Mace, & other Drugs more than any other Place in the World."—"Timor I. This Island Produces Gold, Cinnamon, Ginger & Sandal." The Fisheries are, of course, given frequent attention: "Here 400 Sail have been loaded with Herrings in one Season,"—"Here is good fishing for Cod and Ling of a great size."—"Ambergreese found on this Coast."—"Great quantities of Herrings catchd here."—"Here they fish for Whales but the



*Prima ego velivolis ambi vi cursibus Orbem,
Magellane novo te duce ducta fredo.
Ambi, meritoq; vocor VICTORIA: sunt mi
Vela, alae; premium, gloria; pugna, mare.*

The ship of Magellan in gala attire, Fame at the prow and the circumnavigator on the poop, with astrolabe in hand. Actual size of the ship, from map shown on Page 48.

Navigation is difficult."—"They fish for Pearl in all these Rivers."—"Note that Greenland has no Inhabitans, but is every Year visited by many Ships from Holland, Hamburg etc. who fish in these Seas and on the Coast for Whale."—"On a Speed map of TARTARY there are these facts noted: "In this Country is a Hil out of which they dig earth called by pliny terra asbestus, having fine veines like grasse which being Spun and weaved yeeeld cloth that wil not burn in the fire."—"In the wildernes of Lop and Belgian they say are heard terrible noises and seen marvelous apparitions of evil Spirits where by many are mislead."—"It is called the greatest Lake of the whole world [Caspian Sea], being soolt it aboundeth with great plentie of fishes."

WHAT romance and adventure is suggested in some notes on a 1720 map of the WEST INDIES: "Here one of the Flota drops Anchor to give notice to La Hacha, that the Gallions are come, and immediately Expresses are send over Land to Cartagena, Lima, Panama, etc. to hasten ye kings Treasure."—"A High Tower where is always watch kept to see if any Ships are coming from Sea and as many Ships as many flaggs are hung out that ye City may know it."—"Here Sir William Phipps took up a vast quantity of Silver from a Spanish Wreck, in 1685."—"This island abounds in Beeves and Swine; the Gallions &c. take in Provisions at the Havana for their Voyage to Old Spain."—"The Gallions

and Flota usualy Joyning at the Havana, the whole Armada Sails for Spain thro this Gulf." — "At Cartagena the Gallions usually stay 60 days, and thence go to Portobel, where they lye 30 days, and then return agin to Cartagena; from whence after som stay, they sail for the Havana to meet there ye Flota, which is a small number of ships that go to la Vera Cruz to take in ye Effects of that Country."

NOTES on a map of LOUISIANA by Senex, and one of the WEST INDIES by Moll give a suggestion of the spirit of exploration that was abroad in the early years of the 18th century. The courses of de Soto, Tanty, Denis, Fernand and others are all marked: "Wandering Indians & Man-eaters," — "Here Mr. d'la Salle was killed in 1687." — "The Indians say that near this place the Spaniards ford the River on Horse-back going to treat with some Nations lying to the Northwest whence they bring Yellow Iron as they call it." [Montana] — "These Nations make War for the Spaniards." — "A Desart 120 Leagues in Compass where the Illinois hunt Cows." [Missouri] — "Shaking Ground." — "Marsh Ground." — "Here Abatschakin King of these Countries was defeated & made Prisoner," [Virginia] — "In this Gulf or Bay [Mexico] you may know what distance you are from ye Shoar by Sounding ye Depth of water and as many Fathom as you find so many leagues you are from ye Shoar." — "Pensacola a Spanish Fort but all their Indians have deserted and gone to ye French at Mobile." — "Apalaxy or Appalapa old Indian Settlement, 1000 men, Good Ground, Brought over by Coll. Moore but now Deserted."



AMERICA CLAIMED BY FRANCE, a map of 1720, is prepared from the early settlers' point of view. "A great part of this map is taken from ye Original Draughts of Mr. Blackmore, the Ingenious Mr. Beresford, now residing in Carolina, Capt. Nairn and others never before Published, the South West Part of Louisiana is done after a French Map Published at Paris in 1718. *** N. B. The French Divisions are inserted on purpose, that those Noblemen, Gentlemen, Merchants &c., who are interested in our Plantations in those Parts, may observe whether they agree with their Proprieties, or do not justly deserve ye name of Incroachments." — "The French Map mention'd in the Title is done by Monsr. Delisle and Published by him at Paris in June 1718, which I am ready to shew to any Gentleman that desires it." — "This County has vast and Beautiful Plains, all Level and full of Greens, which afford Pasture to an infinite Number of Beeves and other Creatures." — "Explanation of an Expedition in Florida Neck, by Thirty-three Jamesee Indians Accompany'd by Capt Nairn *** to go a Slave Catching." The account follows, which tells of the taking of thirty-five slaves and the killing of thirty-three male relatives. — "Many wandering Nations of Indians at ye Head of these Rivers [Colorado] who use Horses and Trade with the French and Spaniards." — "This whole country is full of Mines" [Kansas]. — "Good Pasture Ground" [Tennessee] — "Parts Unknown" [New Mexico].

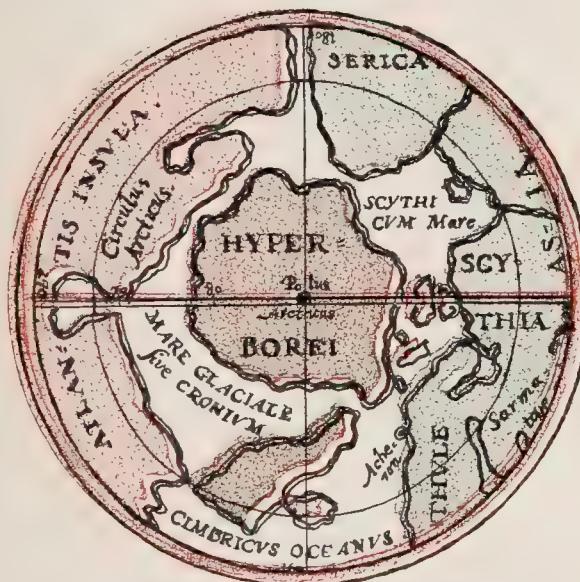


NOTES on a Moll map of NORTH AMERICA concern chiefly early explorations: "Capt James set out from Bristol May 3 1631." — "Capt Hudsons set out from ye R Thames April 17 1610 3d voyage." — "Hereabouts was Capt Hudson and others turned into a Shalop and never heard of anymore." [1714]. — "Some will have Baffins Bay to run West as far

as this faint Shadow." — "St Salvador or Catt Island the first Land that was Discover'd of all America. 1492." — "The Baron Lahomtan in his first Book page 125 says that some of the Mozeemleck nation told him, that at the distance of 150 Leagues their principal River empties it self into a Salt Lake 300 Leagues in circumference. the mouth of wch is about two Leagues broad; That ye lower part of that River is adorn'd with six noble Cities, besides a hundred Towns great and small, round that sort of Sea and that ye People call themselver Tahuglank &c."

A MAP of SOUTH AMERICA has a number of interesting notes: "I St. Helena the British Ships usually touch here for Refreshments in their Return home from the East Indies" — "I Juan Ferdinando Alexander Selkirk a Scotchman found on this Iст where he had liv'd 4 Years and 4 Months alone. Febr. 2. 1709." — "I St. Philip the Spaniards says theres no such islands." — "Potosi lies in the Province of Peru. . . . It has four extraordinary rich veins of Silver Oar, discovered A.D 1545 . . . In 1587 a Rich Vein contained 87 Mines, some of wch were above 200 Fathom deep. Here are kept employd by turns about 20000 Miners. It is generally reported that here are refined annually, for ye king's fifth Part, about 34666 Pd W. of fine Silver, besides what he is deprived of, wch is thought to equal about the said Sum." — "C. Horn discover'd by la Maire ye first that Passed this way into ye South Sea A.D. 1616." el Dorado is marked on the shore of Prime Lake in Guiana.

NEW YORK could have been bought for £2,000 in the time of Charles I, according to a French Map of 1777: "New York, sometimes called New Sweden, was visited in 1608, by Hudson. The English claimed that he bought this country from the Indians, and, in turn, sold it to the Dutch. Charles I, having reclaimed it, the States contended with him for it. The head of the Holland Company offered him the country for £2,000 sterling, but soon after the Dutch retracted the offer and built forts there, calling the country 'New Holland' together with 'New Jersey.' "



The Arctic Regions as mapped by Ortelius, 1597
America is here identified with Atlantis.

A FEW IMPORTANT NAMES IN THE EARLIER HISTORY OF MAP-MAKING

- ALLARD, Carolus. Dutch. 17th Century. (*Also Abraham*).
D'ANVILLE, Jean Baptiste Bourguignon. French. 1697-1782.
ARROWSMITH, Aaron. English. 1750-1823. (*Also Aaron Jr. and Lewis S.*)
BELLIN, Jacques Nicolas. French. 1703-1772. (*Also Samuel*).
BLAEU, Willem Janszoon, Dutch. 1571-1638. (*Also Jan, and Cornelis*).
CAMDEN, William. English. 1551-1623.
CARY, John. English. fl. 1769-1836.
DANCKERTS, Justus. Dutch. 17th Century. (*Also Cornelis*).
FADEN, William. English. 1750-1836.
DE FER, Nicolas. French. 1646-1720.
HOMANN, Jean Baptiste. German. 1664-1724.
HONDIUS, Jodocus. Flemish. 1563-1611. (*Also Henricus*).
JAILLOT, Chas. Hubert Alexis. French. 1640-1712. (*Also A. H. Jaillot, and Bernard Jaillot*).
JANSSON, Jan. Dutch. d. 1666.
JEFFERYS, Thomas. English. 1695?-1771.
KITCHIN, Thomas. English. 1718-1784.
DE LISLE, William. French. 1675-1726. (*Also Joseph Nicholas*).
MERCATOR, (Gerhard Krämer). German-Flemish. 1512-1594.
MOLL, Herman. Dutch-English. fl. 1698-1732.
MORDEN, Robert. English. 1668-1703.
MORTIER, Pierre. French-Dutch. fl. 1693-6. (*Also Cornelius*).
MÜNSTER, Sebastian. German. 1489-1552.
NORDEN, John. English. 1548-1625.
ORTELIUS, Abraham. Flemish. 1527-1598.
PITT, Moses. English. fl. 1654-1696.
POLEMY, Claudius. Greek. fl. 139-161.
RIZZI-ZANNONI, G. A. Italian. 18th Century.
ROBERT de Vaugondy, Sr. French. 1688-1766. (*Also Robert Jr.*)
SANSON, Nicolas. French. 1600-1667. (*Also Nicolas Jr.*)
SAXTON, Christopher. English. fl. 1570-1596.
SCHENK, Pieter. Dutch? fl. 1645-1715. (*Also Pieter, Jr.*)
SELLER, John. English. fl. 1667-1700.
SENX, John. English. 1719-1740.
SEUTTER, Matthew. German. 1678-1756.
SPEED, John. English. 1555-1629.
STRABO. Greek. ca. 60 B. C.—ca. 24 A. D.
TAVERNIER, Melchior. Flemish. 1544-1641. (*Also Melchior, Jr.*)
TIRION, Isaak. Dutch. fl. 1730-1769.
VALCK, Gerard. Dutch. 1626-1720. (*Also Leonard*).
VISSCHER, Nicholas. Dutch. 1621-1670. (*Also Nicholas Jr., Nicolas Jansson, and Carl Janszoon*).
WALDSEEMÜLLER, Martin. German. b. 1470?-1522.
DE WIT, Frederich. Dutch. 17th Century.

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